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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/517,750	06/10/2005	Wolfgang Clemens	411000-122	6074

7590 08/06/2008  
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EXAMINER
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HO, HOANG QUAN TRAN

ART UNIT	PAPER NUMBER
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2818

MAIL DATE	DELIVERY MODE
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08/06/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/517,750	<b>Applicant(s)</b> CLEMENS ET AL.	
	<b>Examiner</b> Hoang-Quan Ho	<b>Art Unit</b> 2818	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 26 June 2008.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1,2,4-7 and 9 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,4-7 and 9 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Petition Decision***

The petition under 37 CFR 1.181 filed on June 26, 2008 has been treated as a request for reconsideration. The request is granted. The final rejection mailed on 2/14/08 is withdrawn.

### ***Response to Amendment***

Applicant's amendment to the claims, filed on May 15, 2008, is acknowledged. Entry of amendment is accepted and made of record. Currently, claims 1 – 2, 4 – 7 and 9 are pending in light of the amendment, in which: claims 1 – 2, 4 – 7 and 9 were amended; claims 3 and 8 were cancelled; no claim was withdrawn; and no claim was added.

### ***Response to Arguments/Remarks***

Applicant's petition with arguments filed on May 15, 2008 is acknowledged and is answered as follows.

Applicant's arguments, see pgs. 1 – 7, with respect to the rejections have been fully considered. The Examiner does not fully acquiesce to Applicant's arguments. However, upon further consideration, further grounds of rejections are made below.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1 – 2, 4 – 7 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bao et al. (High-Performance Plastic Transistors Fabricated by Printing Techniques), hereinafter as Bao, further in view of Carey et al. (U.S. Pat. No. 5,817,550), hereinafter as Carey, and further in view of Shi et al. (U.S. Pat. No. 6,326,640 B1), hereinafter as Shi.

Regarding claim 1, fig. 1 of Bao teaches in an electronic organic component, the combination comprising:

a substrate of the electronic organic component (“polyester substrate” layer as seen in fig. 1); and

an organic semiconductor functional layer (“organic semiconductor” layer as seen in fig. 1) coated on the substrate (the organic semiconductor layer is coated, i.e., provided on the polyester substrate, as seen in fig. 1; see note 2 below);

wherein said substrate comprises a biaxially stretched (well-ordered) plastic film (pg. 1299, right column, first sentence of last paragraph; see Note 1 below) such that the orderliness of the plastic film forms the applied functional layer into a well-ordered layer to thereby increase the charge carrier mobility of the coated organic functional layer (pg. 1300, right column, lines 11 – 31).

Note 1: Bao teaches that the polyester substrate, specifically polyethylene terephthalate is commonly used as a substrate for large area displays at pg. 1299, right column, first sentence of last paragraph. However, Bao may not explicitly disclose the commonly used substrate, that such polyester substrate is a biaxially stretched, well-ordered, plastic film. Carey teaches that it is known in the art to provide such polyester substrate as a biaxially stretched, well-ordered, plastic film (col. 3, lines 36 – 31) that are commonly used as a substrate for large area displays (col. 2, lines 28 – 31). It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the invention of Bao with the specifics of the polyester substrate of Carey that is commonly used for large area displays, in order to provide excellent optical quality and low cost (col. 3, lines 36 – 41). It is proper to combine Bao and Carey because they both teach analogous art relating to thin film transistor (TFT) on a plastic substrate.

Note 2: Bao may not explicitly teach that the organic semiconductor is coated on the substrate. However, fig. 6 of Shi teaches that it is known in the art to provide:

a substrate of the electronic organic component (ref. no. 63); and  
an organic semiconductor functional layer (ref. no. 64) coated on the substrate  
(as seen in fig. 6).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the invention of Bao with the TFT layout design of Shi, in order to provide alternative TFT layout which enhances carrier mobility between the source and drain electrodes (col. 2, lines 25 – 30; col. 3, lines 5 – 15; col. 3, line 62 – col. 4, line 5). It is proper to combine Bao and Shi because they both teach analogous art relating to organic TFT.

Regarding claim 2, Bao, Carey and Shi teaches a substrate as defined in claim 1, Carey teaches wherein the plastic film is at least partially crystalline (col. 3, lines 36 – 41).

Regarding claim 4, Bao, Carey and Shi teaches a substrate as defined in claims 1 or 2, Carey teaches wherein the plastic film is selected from any one of the group consisting of isotactic polypropylene, polyamide, polyethylene, or polyethylene terephthalate (col. 3, lines 36 – 41).

Regarding claim 5, pg. 1300, right column, lines 11 – 31 and fig. 1 of Bao teaches a method of increasing the charge carrier mobility of a semiconducting layer of organic material (“organic semiconductor” layer as seen in fig. 1),

wherein the semiconducting layer is formed on and contiguous (see note 2 below) with an underlayer (“polyester substrate” layer as seen in fig. 1) comprising an oriented, biaxially stretched (well-ordered) plastic film (pg. 1299, right column, first sentence of last paragraph; see Note 1 below).

Note 1: Bao teaches that the polyester substrate, specifically polyethylene terephthalate is commonly used as a substrate for large area displays at pg. 1299, right column, first sentence of last paragraph. However, Bao may not explicitly disclose the commonly used substrate, that such polyester substrate is a biaxially stretched, well-ordered, plastic film. Carey teaches that it is known in the art to provide such polyester substrate as a biaxially stretched, well-ordered, plastic film (col. 3, lines 36 – 31) that are commonly used as a substrate for large area displays (col. 2, lines 28 – 31). It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the invention of Bao with the specifics of the polyester substrate of Carey that is commonly used for large area displays, in order to provide excellent optical quality and low cost (col. 3, lines 36 – 41). It is proper to combine Bao and Carey because they both teach analogous art relating to thin film transistor (TFT) on a plastic substrate.

Note 2: Bao may not explicitly teach that the semiconducting layer is formed on and contiguous with an underlayer. However, fig. 6 of Shi teaches that it is known in the art to provide:

an underlayer (ref. no. 63); and

a semiconducting layer of organic material (ref. no. 64) is formed on and contiguous with the underlayer (as seen in fig. 6).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the invention of Bao with the TFT layout design of Shi, in order to provide alternative TFT layout which enhances carrier mobility between the source and drain electrodes (col. 2, lines 25 – 30; col. 3, lines 5 – 15; col. 3, line 62 – col. 4, line 5). It is proper to combine Bao and Shi because they both teach analogous art relating to organic TFT.

Regarding claim 6, Bao, Carey and Shi teaches the component of any one of claims 1 or 2, fig. 1 of Bao teaches wherein the component further comprises an organic field effect transistor (OFET) (pg. 1299, left column, first paragraph) comprising the substrate or underlayer (as seen in fig. 1) and the semiconductor layer coated on the substrate or underlayer (the organic semiconductor layer is coated, i.e., provided on the polyester substrate, as seen in fig. 1).

Regarding claim 7, fig. 1 of Bao teaches an organic field effect transistor (OFET) (pg. 1299, left column, first paragraph) comprising:



a substrate ("polyester substrate" layer as seen in fig. 1) which comprises a biaxially stretched (well-ordered plastic film) (pg. 1299, right column, first sentence of last paragraph; see Note 1 below); and

above and on that substrate contiguous therewith (see note 2 below) is a semiconducting layer of organic material ("organic semiconductor" layer, i.e., provided above and on the polyester substrate, as seen in fig. 1),

the semiconductor layer exhibiting a charge carrier mobility of  $\mu > 10^{-3} \text{ cm}^2/\text{Vs}$  (pg. 1300, right column, lines 11 – 31).

Note 1: Bao teaches that the polyester substrate, specifically polyethylene terephthalate is commonly used as a substrate for large area displays at pg. 1299, right column, first sentence of last paragraph. However, Bao may not explicitly disclose the commonly used substrate, that such polyester substrate is a biaxially stretched, well-ordered, plastic film. Carey teaches that it is known in the art to provide such polyester substrate as a biaxially stretched, well-ordered, plastic film (col. 3, lines 36 – 31) that are commonly used as a substrate for large area displays (col. 2, lines 28 – 31). It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the invention of Bao with the specifics of the polyester substrate of Carey that is commonly used for large area displays, in order to provide excellent optical quality and low cost (col. 3, lines 36 – 41). It is proper to combine Bao and Carey because they both teach analogous art relating to thin film transistor (TFT) on a plastic substrate.

Note 2: Bao may not explicitly teach that above and on that substrate contiguous therewith is a semiconducting layer of organic material. However, fig. 6 of Shi teaches that it is known in the art to provide:

a substrate (ref. no. 63); and

above and on that substrate contiguous therewith (as seen in fig. 6) is a semiconducting layer of organic material (ref. no. 64).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the invention of Bao with the TFT layout design of Shi, in order to provide alternative TFT layout which enhances carrier mobility between the source and drain electrodes (col. 2, lines 25 – 30; col. 3, lines 5 – 15; col. 3, line 62 – col. 4, line 5). It is proper to combine Bao and Shi because they both teach analogous art relating to organic TFT.

Regarding claim 9, fig. 1 of Bao teaches an organic field effect transistor (OFET) (pg. 1299, left column, first paragraph) comprising a substrate (“polyester substrate” layer as seen in fig. 1) and a semiconducting layer (“organic semiconductor” layer as seen in fig. 1) on and contiguous (see note 1 below) with the substrate (the organic semiconductor layer is provided on the polyester substrate, as seen in fig. 1) according to claim 4.

Note 1: Bao may not explicitly teach that a semiconducting layer on and contiguous with the substrate. However, fig. 6 of Shi teaches that it is known in the art to provide:

a substrate (ref. no. 63); and  
a semiconducting layer (ref. no. 64) on and contiguous with the substrate (as seen in fig. 6).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the invention of Bao with the TFT layout design of Shi, in order to provide alternative TFT layout which enhances carrier mobility between the source and drain electrodes (col. 2, lines 25 – 30; col. 3, lines 5 – 15; col. 3, line 62 – col. 4, line 5). It is proper to combine Bao and Shi because they both teach analogous art relating to organic TFT.

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hoang-Quan Ho whose telephone number is 571-272-8711. The examiner can normally be reached on Monday - Friday, 9 AM - 5 PM, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Loke can be reached on 571-272-1657. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/HQH/  
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Assistant Patent Examiner  
July 31, 2008

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